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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/497,513	02/04/2000	Yoshitaka Kawanabe	Q057824	7577

7590 01/10/2003

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2100 Pennsylvania Avenue N W
Washington, DC 20037-3202

EXAMINER

WILLIAMS, DEMETRIA A

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 01/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/497,513

Applicant(s)

KAWANABE, YOSHITAKA

Examiner

Demetria A. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-9 is/are rejected.
- 7) ☒ Claim(s) 5 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 3, 4, 8, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 1 recites the limitation "the antenna" in the fifth line of the claim. There is insufficient antecedent basis for this limitation in the claim. The preamble of the claim indicates that there is a plurality of antennas while line 5 of the claim refers to a single antenna. For purposes of applying prior art, the examiner assumes "the antenna" refers to each antenna.
4. Claims 3 and 8 recite the limitations "the amplifier" in line 5 of the claims, "the oscillator" in line 6 of the claims, and "the mixer" in line 8 of the claims. There is insufficient antecedent basis for these limitations in the claims. The preambles of the claims refer to these elements in the plural whereas the indicated lines refer to the elements singularly. For purposes of applying prior art, the examiner assumes that the claims refer to each of the plurality of the specified element.
5. Claims 4 and 9 recites the limitation "the amplifier" in line 5 of the claims, "the frequency multiplier" in line 7 of the claims, and "the mixer" in line 10 of the claims. There is insufficient antecedent basis for these limitations in the claims. The preambles of the claims refer to these elements in the plural whereas the indicated lines refer to the elements singularly.

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For purposes of applying prior art, the examiner assumes that the claims refer to each of the plurality of the specified element.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan et al ("Sullivan") in view of Nakazawa and Shou et al ("Shou").

8. Regarding claim 1, Sullivan discloses a communications system comprising at least one mobile station and one base station wherein antennas receive the transmitted waves (see generally column 4, lines 9-10), a receiving portion which converts the signals to intermediate frequencies and performs analog-to-digital conversion (see generally column 5, lines 1-10), and a signal processing portion which performs a de-spreading operation for identifying a code of interest and judges the arrival direction of each of the waves (see generally column 4, lines 25-50). Sullivan does not disclose a frequency shift portion prior to combining the signals, nor does he disclose that the signal processing portion includes fading compensation means.

Nakazawa discloses a communications system comprising a receiver for receiving a plurality of waves wherein the frequency of the received waves is shifted by different degrees for each antenna and then combined in a combiner (see generally column 14, lines 11-50). By shifting the frequencies and then combining the waves, the combined signal that is formed does not have overlapping components. Therefore, it would have been obvious to one of ordinary

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skill in the art at the time of the invention to modify the invention of Sullivan to include a frequency shifting portion, as taught by Nakazawa, in order to prevent frequency overlap in the combined signal.

Shou discloses a communications system having a RAKE receiver wherein fading compensation is performed by RAKE processing based on the demodulation signal (see generally column 9, lines 23-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include fading compensation, as taught by Shou, in order to compensate for signal interference which occurs when signals are received through a plurality of routes.

9. Regarding claim 2, Sullivan further discloses that the communications systems utilizes code division multiple access (CDMA) (see generally column 4, lines 5-7).

10. Regarding claim 6, Sullivan discloses a communications system comprising at least one mobile station and one base station wherein antennas receive the transmitted waves (see generally column 4, lines 9-10), a receiving portion which converts the signals to intermediate frequencies and performs analog-to-digital conversion (see generally column 5, lines 1-10), and a signal processing portion which performs a de-spreading operation for identifying a code of interest and judges the arrival direction of each of the waves (see generally column 4, lines 25-50). Sullivan does not disclose a frequency shift portion prior to combining the signals, nor does he disclose that the signal-processing portion includes fading compensation means. While Sullivan does specifically disclose an embodiment of the plurality of antennas as an adaptive array antenna, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan, for use with an adaptive array antenna, as it is well

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know in the art that an adaptive array system is simply a plurality of antennas arranged having separate weighting vectors.

Nakazawa discloses a communications system comprising a receiver for receiving a plurality of waves wherein the frequency of the received waves is shifted by different degrees for each antenna and then combined in a combiner (see generally column 14, lines 11-50). By shifting the frequencies and then combining the waves, the combined signal that is formed does not have overlapping components. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include a frequency shifting portion, as taught by Nakazawa, in order to prevent frequency overlap in the combined signal.

Shou discloses a communications system having a RAKE receiver wherein fading compensation is performed by RAKE processing based on the demodulation signal (see generally column 9, lines 23-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Sullivan to include fading compensation, as taught by Shou, in order to compensate for signal interference which occurs when signals are received through a plurality of routes.

11. Regarding claim 7, Sullivan further discloses that the communications systems utilizes code division multiple access (CDMA) (see generally column 4, lines 5-7).

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Conclusion

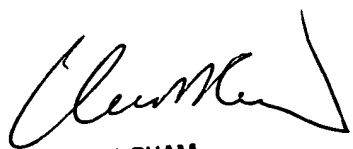
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Komatsu discloses a RAKE receiver for CDMA signals. Hiramatsu et al discloses an adaptive array antenna system comprising receiving and signal processing means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Demetria A. Williams whose telephone number is (703) 305-4078. The examiner can normally be reached on Monday - Friday, 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

daw
January 3, 2003


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 1/8/03